

CLAIMS

Sub 1. Process for assembling at least two simple sheet metal parts (1, 2, 3; 11, 12; 21, 21', 22, 22'), in order to create a structural component of open cross section, which is preferably U-shaped, or of closed cross section, at least one of said metal parts having a high or very high elastic limit and low formability, characterized in that:

- 10 - the metal parts are formed by at least one bending process;
- the metal parts are arranged relative to each other in a junction section;
- the metal parts are assembled by crimping at the hem (4)
- 15 along the junction section of said parts.

2. Assembly process according to Claim 1, characterized in that at least one of the parts is made of steel and has an elastic limit of more than 400 MPa.

3. Assembly process according to Claim 1, characterized in that at least one of the parts is made of aluminium alloy and has an elastic limit of more than 200 MPa.

SUBA 2) 4. Assembly process according to any one of Claims 1 to 3, characterized in that the ratio of the radius of the hem (4) to the sum of the thicknesses of the various parts one wishes to assemble along the junction section is between 2 and 10.

5. Assembly process according to any one of Claims 1 to 3, characterized in that the ratio of the difference between the radius of the hem (4) and the thickness of the outermost metal with the thickness of the innermost metal is more than 2.

SUB A 2

6. Assembly process according to any one of the preceding claims, characterized in that the nature or thickness of the various parts is not identical for all.

7. Assembly process according to any one of the preceding claims, characterized in that the junction is not rectilinear and has a local curvature, the radius of which is more than at least five times the external radius of the hem (4).

8. Assembly process according to any one of the preceding claims, characterized in that, after said hem crimping, blocking of said hem with respect to the sliding of the assembled parts along the junction section is achieved by bonding, indentation or imbrication.

9. Product obtained by the assembly process described in any one of the preceding claims, characterized in that it has at least two metal parts (1, 2, 3; 11, 12; 21, 21', 22, 22') assembled with a hem (4) along a junction section of said parts.

SUB 10. Product according to Claim 8, characterized in that the ratio of the radius of the hem (4) to the sum of the thicknesses of the various parts that are assembled along the junction section is between 2 and 10.

SUB A 3

11. Product according to Claim 8 or 9, characterized in that the ratio of the difference between the hem (4) radius and the thickness of the outermost metal with the thickness of the innermost metal is more than 2.

12. Product according to any one of Claims 8 to 10, characterized in that it is in the form of a two-web I-shaped girder obtained by assembling four constituent parts (21, 21', 22, 22') connected by four hems (4) along the junction section of the four parts taken in pairs.

13. Product according to any one of Claims 8 to 10, characterized in that it results from the assembly of two parts (11, 12) by means of two hems (4) so as to form a

SUB A3)

closed cross section, at least one of the two parts having a U-shaped cross section.

SECRET